

ABSTRACT OF THE DISCLOSURE

There is a liquid crystal display element capable of obtaining a good display performance which is not influenced by the deterioration with the time course and the history of applied voltage. The liquid crystal display element comprises: a first electrode substrate having a first transparent substrate, a first electrode formed on the first substrate, and a first alignment layer formed on the first substrate so as to cover the first electrode; a second electrode substrate having a second transparent substrate, a second electrode formed on the second substrate, and a second alignment layer formed on the second substrate so as to cover the second electrode; and a light modulating layer of an anti-ferroelectric liquid crystal material which is sandwiched between the first and second electrode substrates covered with alignment layers and which has a thresholdless voltage-transmittance characteristic, wherein the first and second alignment layers are combined with the liquid crystal material so that a shifted angle between the optical axis θ_B and an optical axis θ_{OA} of a batonnet is within ± 1 degree.

20

Region	Population (1990)	Population (2000)	Population (2010)	Population (2020)	Population (2030)	Population (2040)	Population (2050)	Population (2060)	Population (2070)	Population (2080)	Population (2090)	Population (2100)
North America	300,000,000	310,000,000	320,000,000	330,000,000	340,000,000	350,000,000	360,000,000	370,000,000	380,000,000	390,000,000	400,000,000	410,000,000
Europe	500,000,000	510,000,000	520,000,000	530,000,000	540,000,000	550,000,000	560,000,000	570,000,000	580,000,000	590,000,000	600,000,000	610,000,000
Asia	3,000,000,000	3,100,000,000	3,200,000,000	3,300,000,000	3,400,000,000	3,500,000,000	3,600,000,000	3,700,000,000	3,800,000,000	3,900,000,000	4,000,000,000	4,100,000,000
Africa	600,000,000	650,000,000	700,000,000	750,000,000	800,000,000	850,000,000	900,000,000	950,000,000	1,000,000,000	1,050,000,000	1,100,000,000	1,150,000,000
Latin America	500,000,000	510,000,000	520,000,000	530,000,000	540,000,000	550,000,000	560,000,000	570,000,000	580,000,000	590,000,000	600,000,000	610,000,000
Oceania	30,000,000	35,000,000	40,000,000	45,000,000	50,000,000	55,000,000	60,000,000	65,000,000	70,000,000	75,000,000	80,000,000	85,000,000
Total	5,400,000,000	5,600,000,000	5,800,000,000	6,000,000,000	6,200,000,000	6,400,000,000	6,600,000,000	6,800,000,000	7,000,000,000	7,200,000,000	7,400,000,000	7,600,000,000